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CHRONICLE OF THE WORLD HEALTH ORGANIZATION

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RECENT AND FORTHCOMING MEETINGS

8-27 May	Third World Health Assembly, Geneva
30-31 May	Joint Committee on Health Policy, UNICEF/WHO, fourth session, Geneva
1-10 June	WHO Executive Board, sixth session, Geneva
7-12 August	WHO Expert Committee on School Health Services, first session, Geneva
28 August-2 September	Joint ILO/WHO Committee on Occupational Hygiene, first session, Geneva
4-7 September	WHO Regional Committee for the Eastern Mediterranean, third session, Istanbul
8-9 September	WHO Regional Conference on Statistics, Istanbul
11-16 September	WHO Expert Committee on Mental Health, second session, Paris
11-16 September	WHO Expert Committee on Tuberculosis, fifth session, Geneva
22-26 September	WHO Regional Committee for South-East Asia, third session, Kandy, Ceylon
23 September-2 October	WHO Expert Committee on Venereal Infections: Subcommittee on Serology and Laboratory Aspects, second session, Paris
25-30 September	WHO Regional Committee for the Americas, second session; Pan American Sanitary Organization Directing Council, fourth meeting; Cuidad Trujillo
4-11 October	WHO Expert Committee on Insecticides, second session, Geneva
9-18 October	WHO Expert Committee on International Epidemiology and Quarantine, third session, Geneva
30 October-4 November	WHO Expert Committee on the Unification of Pharmacopoeias, seventh session, Geneva
6-11 November	WHO Expert Advisory Panel on Brucellosis, Washington
27 November-9 December	WHO Malaria Conference in Equatorial Africa, Kampala, Uganda
December	WHO Expert Committee on Public-Health Administration, first session, Geneva
11-16 December	WHO Expert Committee on Malaria, fourth session, Kampala, Uganda

SIXTH SESSION OF THE EXECUTIVE BOARD

The Executive Board held its sixth session in Geneva from 1 to 9 June 1950, i.e., a few days after the close of the Third World Health Assembly.[1] Dr H. S. Gear was elected Chairman and Professeur M. De Laet and Lt-Col. M. Jafar, Vice-Chairmen.

As a result of decisions taken by the Assembly, the Board had several important tasks to perform. Its attention was primarily directed towards problems of a financial nature, particularly with regard to the 1951 budget. Other questions also discussed were : decentralization of the Organization, arrangements concerning the rules of procedure and the programme of the Health Assembly, relations with non-governmental organizations, reports of expert committees, supplies for governmental programmes, the technical assistance programme, and publications.

In the course of its work, the Board made use of the reports of the Standing Committee on Administration and Finance,[2] whose aid was found so useful during the fifth session of the Board, and of the Committee on Non-Governmental Organizations. Three working parties were appointed to study questions of procedure, supplies for governmental programmes, and the problems involved in the choice of a different seat for each Assembly.

The Executive Board decided to open its seventh session on 22 January 1951 at the Palais des Nations, Geneva. This session will be preceded by a meeting of the Standing Committee on Administration and Finance, which will take place on 7 January.

Budgetary Problems

The Third World Health Assembly adopted a budget of $7,300,000 for 1951, in accordance with the estimates submitted by the Director-General, and requested the Executive Board to establish the level of expenditure.

Taking into consideration that amount of the estimated income for 1951 which was reasonably expected to become available during that year, the Board decided that the expenditure level for 1951 should not exceed $6,150,000. As some of the Member States, including those which have decided to withdraw from WHO, had not made their subscriptions available, the programme of WHO had to be re-examined, in the light of the principles laid down by the Third Health Assembly, and had to be adjusted to the financial resources of the Organization. During the discussion, stress was laid on the necessity of not decreasing the allocations for

[1] *Chron. World Hlth Org.* 1950, 4, 197
[2] *Chron. World Hlth Org.* 1950, 4, 110

fellowships, technical services, and field operations, of giving priority to pestilential diseases, and of maintaining certain expert committees. A saving should be realized by reducing the total number of staff, apart from persons professionally qualified in public health.

To promote the international work of WHO, it was suggested that funds might be collected, either by issuing special postage stamps or "world-health" labels, or by the sale of flags on World Health Day. The establishment of a World Health Defence Fund would make it possible to mobilize considerable resources in favour of health. The most suitable methods of raising funds will need to be studied and a programme drawn up for putting them into operation. It will be the responsibility of the Fourth World Health Assembly to take final decisions on this subject.

Decentralization of the Organization

Relations with Pan American Sanitary Bureau

WHO experts are collaborating in the work of the Pan American Sanitary Bureau, which now serves as the Regional Office of WHO for the Americas, and various joint projects—a campaign against tuberculosis in El Salvador, insect control in Central America, and control of pertussis and diphtheria in Chile and Colombia—are at present under consideration. Certain problems of an administrative nature still remain to be settled with the Pan American Sanitary Bureau, but the spirit of close co-operation which at present prevails augurs well for the future.

Other problems concerning regional organization

The organization of a regional office for Europe has met with certain difficulties. Six Member States in the region have so far not replied to the request sent them in connexion with the establishment of a regional organization ; seven have expressed reservations ; and six have sent negative replies. Only eight countries stated that they were in agreement. In the opinion of the Board, this question cannot be indefinitely deferred ; a decision should be taken during the seventh session. In the meantime, the financial implications of the establishment of this office must be studied.

The Standing Committee on Administration and Finance studied the problem of regional organization, giving special consideration to the progress made in decentralization, the organizational structure, and the effectiveness of regional offices. The regional directors were able to explain the position of their respective offices with regard to these various aspects. The problems which arise are not the same for every regional organization ; however, certain fundamental principles should guide the activities of the regional offices : the needs of the Member States in the region should be

studied ; programmes should be drawn up indicating the relative importance of each project ; the implementation of the projects should be entrusted to experts with an international reputation, who should remain in the region long enough to familiarize themselves with local conditions. The improvement of public-health services still remains one of the principal aims.

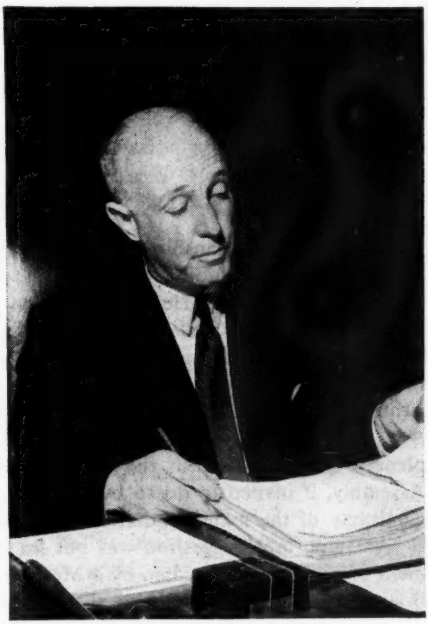
World Health Assembly

Date and seat of future Assemblies

The Fourth Health Assembly will open at the Palais des Nations, Geneva, on 7 May 1951. It will be preceded by a meeting of a special commission, composed of Member States, charged with the task of examining the draft International Sanitary Regulations prepared by the Expert Committee on International Epidemiology and Quarantine.[3] The need for adopting this draft is becoming urgent in view of the increasing difficulties caused in international relations by the absence of international sanitary regulations adapted to present requirements. The commission will have to meet a few weeks before the opening of the Fourth Health Assembly so that the draft regulations can be adopted by the Assembly.

Dr Hyde, who was convinced of the importance of holding meetings of the Assembly away from the headquarters of the Organization—partly because of the advantages to local health-administrations and partly because of the possibility of thus making the objectives of WHO more widely known—specially stressed the desirability of carefully considering this question. It stands to reason that the Organization would encounter financial and administrative difficulties. Since it would be very costly to service the Assembly by transporting staff from headquarters,

FIG. 1. DR H. S. GEAR, CHAIRMAN OF THE EXECUTIVE BOARD



[3] *Chron. World Hlth Org.* 1950, 4, 46

it would be necessary to recruit a large number of persons locally. This question was referred to a working party presided over by Professeur Parisot.

As regards the Fifth World Health Assembly, it was decided that consideration should be given to accepting an invitation to meet in Boston, Mass., USA. Negotiations should be undertaken now with the responsible authorities to determine what financial or other aid could be given the Organization. In future, the question of the site should be studied two years in advance, and all the necessary negotiations should be started in good time, so that the Assembly can take the appropriate decisions.

Arrangements for the Fourth Health Assembly

Decisions regarding the Fourth Health Assembly would normally be taken during the seventh session of the Executive Board. However, this question was considered so important that it was discussed at considerable length during the sixth session.

During the discussions of the Assembly, the attention of the delegates is directed to many problems which cannot be definitely settled in such a short period of time. The organization of the work of the Assembly should therefore be modified. Discussions of a technical nature should be concentrated on a small number of subjects which could thus be studied more thoroughly.

It was proposed that the training of medical and public-health personnel and the economic importance of preventive medicine might be subjects of special discussion during the next Assembly. This proposal, which was adopted by the Executive Board, will be communicated to the Member States.

Amendments to the Rules of Procedure of the Assembly

Under the chairmanship of Mr T. Lindsay (alternate to Dr Mackenzie), a working party studied questions of procedure to be submitted for approval to the Fourth Health Assembly. These questions include a draft amendment to the Rules of Procedure of the Assembly.

The proposed changes in the Rules of Procedure are concerned in particular with the representation of the Executive Board at the Assembly, either by its Chairman or by persons designated by him. It is suggested that such persons might participate without vote in the discussions in plenary meetings, and in the meetings of the main committees, of the Assembly, if invited to do so by the President of the Assembly or by the Chairman of the main committee concerned.

An important suggestion was put forward with regard to the replacement of a person, designated by a Member State to serve on the Executive Board, who fails to attend at three consecutive sessions of the Board.

In this case, the Member State should be considered as having forfeited its right to designate a person to sit on the Board. The Health Assembly, at a regular session, would then elect another Member State to appoint a person for the remainder of the period during which the representative designated by the Member State which had forfeited its right would have been entitled to serve.

Relations with Non-Governmental Organizations

The Standing Committee on Non-Governmental Organizations, which met under the chairmanship of Dr de Paula Souza, submitted proposals to the Board with a view to extending co-operation between non-governmental organizations and WHO. In general, organizations admitted to official relationship with WHO should be those which might promote the application of the principles of the Constitution of WHO and which consist of international federations of affiliated national organizations. Relations with purely national non-governmental organizations should take the form of merely unofficial working relations.

During the biennial revision of the list of organizations already granted official relations with WHO, the Board decided to maintain such relations with the eighteen following organizations :

Biometric Society
Council for the Co-ordination of International Congresses of Medical Sciences
Inter-American Association of Sanitary Engineering
International Academy of Forensic and Social Medicine
International Association for the Prevention of Blindness
International Committee of the Red Cross
International Council of Nurses
International Dental Federation
International Hospital Federation
International Leprosy Association
International Union against Cancer
International Union against Tuberculosis
International Union against Venereal Diseases
International Union for Child Welfare
League of Red Cross Societies
World Federation for Mental Health
World Federation of United Nations Associations
World Medical Association

In addition, official relations will be established with the International Conference of Social Work. It was decided to postpone consideration of the requests of other organizations.

Expert Committees

With regard to future meetings of the expert committees in 1951, it will be necessary to keep in mind the budgetary limitations imposed by the fixing of a reduced expenditure level. The Board noted, and approved the publication of, the reports of the expert committees which met after its fifth session, held in January.

The working party dealing with procedural questions has drawn up draft regulations for the reorganization of the services of experts ; this draft will be submitted to the Fourth World Health Assembly.

Expert Committee on Antibiotics

The Executive Board approved the publication of the report of this committee,[4] and laid stress on the recommendation made by the Joint Committee on Health Policy, UNICEF/WHO, in connexion with the development and modernization of plants for the preparation of various antibiotics. It also recommended the continuation of research on antibiotics and the training of experts, making use of the facilities which the United Nations International Children's Emergency Fund (UNICEF) and other institutions might be able to offer.

Expert Committee on the Unification of Pharmacopoeias

During its sixth session,[5] this committee recommended that the authorities responsible for pharmacopoeias in the different countries should inform WHO of new pharmaceutical products which might be described in the International Pharmacopoeia (*Pharmacopoea Internationalis*) and for which non-proprietary names should be given for national and international use. The choice of name would be left to an expert subcommittee. WHO would then communicate the approved name to the Member States, and would recommend its adoption for national use.

Expert Committee on Professional and Technical Education of Medical and Auxiliary Personnel

The expert committee, during its first session,[6] especially stressed the desirability of making inquiries regarding the medical education, in general, and the training in hygiene and social medicine, in particular, given in various countries. This extremely complex question is of great importance since the necessity of reorganizing medical curricula, above all from the point of view of public health, is becoming more and more evident.

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[4] *World Hlth Org. techn. Rep. Ser.* 1950, **26** (to be published) ; see also *Chron. World Hlth Org.* 1950, **4**, 161.

[5] *World Hlth Org. techn. Rep. Ser.* 1950, **29** (to be published) ; a summary of the report will be published in a forthcoming number of the *Chronicle*.

[6] *World Hlth Org. techn. Rep. Ser.* 1950, **22** (to be published) ; see also *Chron. World Hlth Org.* 1950, **4**, 119.

Expert Committee on Health Statistics

The Board approved the publication of the report on the second session of the Expert Committee on Health Statistics ;[7] this report includes annexes containing the reports of the subcommittees on the definition of stillbirth and abortion, on the registration of cases of cancer, and on hospital statistics.

Regulations applicable to advisory groups and expert committees

The Executive Board drafted amendments to the new regulations applying to advisory panels and expert committees which had been provisionally adopted by the Third Health Assembly. The revised regulations

FIG. 2. SIXTH SESSION OF THE EXECUTIVE BOARD

Left to right: Lt-Col. M. Jafar and Professeur M. De Laet, Vice-Chairmen, Dr H. S. Gear, Chairman

stipulate that the number of experts taking part in committee meetings should be reduced ; the Board considered, however, that restrictions of this nature would make it difficult to ensure appropriate representation of the various aspects of the problems which the expert committees are asked to study. It considered that this difficulty might be overcome by setting up advisory panels of experts, nominated by the Director-General and commissioned to provide, by correspondence and without remuneration, information or technical reports on progress in their special subjects. These and other suggested changes in the regulations applying to expert committees will be submitted to the Fourth Health Assembly.

[7] *World Hlth Org. techn. Rep. Ser.* 1950, **25** (to be published) ; see also *Chron. World Hlth Org.* 1950, **4**, 167, 172, 284.

Supplies for Governmental Programmes

Although WHO is not an organization for sending supplies to governments, it is none the less true, as pointed out by Dr Stampar, that sending certain supplies to governments is sometimes indispensable to enable the latter to carry out specific programmes. Clearly, the granting of such supplies should be in response to real needs. A working party, under the chairmanship of Dr F. J. Brady (alternate to Dr Hyde), was appointed to study the criteria which WHO can employ in answering requests for supplies. In application of the established principles, $100,000 allocated for this purpose have been distributed. Some countries—Afghanistan, Ethiopia, Finland, India, the Hashemite Kingdom of Jordan, Monaco, Portugal, Thailand, and Yugoslavia—have thus been granted supplies for the control of malaria and leprosy, for nursing care, etc.

Relations with UNICEF

Agreement has been reached regarding principles governing co-operation between UNICEF and WHO in matters of personnel, a question, primarily, of procedures to be followed by the personnel of the two organizations when collaborating in the planning of joint projects and programmes.

The Board stressed the importance of the BCG research programme to be undertaken jointly with UNICEF. Finally, the report on the fourth session of the Joint Committee on Health Policy, UNICEF/WHO,[8] was adopted by the Executive Board.

Technical Assistance Programme

The funds allocated for the technical assistance programme will probably be available before the end of 1950. Fifteen requests for assistance have already reached WHO. Sir Arcot Mudaliar expressed the view that, in so far as possible, permanent staff should be assigned to carry out the programme and that the following problems should be given priority : stimulation of campaigns against communicable diseases ; professional and technical education ; fellowships ; and public-health administration. A special committee of the Executive Board will be responsible for advising on all aspects of the technical assistance programme. Operations judged necessary, however, will have to be approved by the Technical Assistance Board.

Publications

Starting with the first number of Volume 3, the *Bulletin of the World Health Organization* will be published in a single edition containing articles either in English or in French, according to the language in which they

[8] A summary of this report will be published in a forthcoming number of the *Chronicle*.

have been submitted, and giving summaries in the two working languages of the Organization. For reasons of economy, the *International Digest of Health Legislation* will no longer be published in fascicle form. The *Digest*, which is published in the two working languages of the Organization, will contain an index arranged according to subject and country.

A supplementary Latin index for the *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death* will be prepared in 1950 for the use of countries which cannot employ the French, English, or Spanish editions of the *Manual*.

MEMBERSHIP OF THE EXECUTIVE BOARD

The designating country is given in parentheses after each member's name. New members are indicated by an asterisk (*).

* A. Amy, Consul-General of El Salvador in Geneva (El Salvador) (Alternate to Dr J. Allwood-Paredes, who was absent)
* Professor G. A. Canaperia, Chief Medical Officer, Office of the High Commissioner for Hygiene and Public Health, Rome (Italy)
* Dr M. Charnes, Zone Medical Inspector, Public Health Service, Santiago (Chile)
* Dr S. Daengsvang, Deputy Director-General of Health, Bangkok (Thailand)

Professeur M. De Laet, Secrétaire général du Ministère de la Santé publique et de la Famille, Brussels (Netherlands) (*Vice-Chairman*)

Dr H. S. Gear, Deputy Chief Health Officer for the Union of South Africa, Cape Town (Union of South Africa) (*Chairman*)

Dr C. L. González, Director of Public Health, Ministry of Health and Social Welfare, Caracas (Venezuela)

Dr J. A. Höjer, Director-General of Public Health, Stockholm (Sweden)

Dr H. Hyde, Medical Director, US Public Health Service, Federal Security Agency, Washington, D.C. (United States of America)

* Lt-Col. M. Jafar, Director-General of Health, Karachi (Pakistan) (*Vice-Chairman*)
* Dr W. de Leon, Director of Laboratories, Department of Health, Manila (Philippines)

Dr M. Mackenzie, Principal Medical Officer, Ministry of Health, London (United Kingdom)

Sir Arcot Mudaliar, Vice-Chancellor, University of Madras (India)

Professeur J. Parisot, Doyen de la Faculté de Médecine, Nancy (France)

Dr G. H. de Paula Souza, Professor and Director, Faculty of Hygiene and Public Health, University of São Paulo (Brazil)

Dr A. Stampar, President of the Yugoslav Academy of Sciences and Arts; Professor of Public Health and Social Medicine, University of Zagreb (Yugoslavia)

Members designated by Poland and by Turkey were absent.

RECENT ADVANCES IN RABIES

Great progress in the knowledge of rabies has been made in the last decade, and it is to be expected that before long more important data will become available, with regard both to methods of prophylaxis and treatment, and to the ecology, immunology, and pathology of the disease.

Most of the recent advances in this field have been the outcome of efforts developed by rabiologists in their particular country. Rabies, however, remains a subject of universal interest and as such calls for international action.

International History

An International Rabies Conference was held in Paris in 1927 under the auspices of the Health Organization of the League of Nations. As a result of the recommendations of this conference, extensive statistical data were collected from all rabies treatment centres and analysed annually.

FIG. 3. EXPERT COMMITTEE ON RABIES, FIRST SESSION

Left to right (seated round table) : Dr K. Habel ; Dr H. Koprowski (Rapporteur) ; Dr P. Lépine (Vice-Chairman) ; Dr C. Klimt (WHO) ; Dr I. A. Galloway (Chairman) ; Dr M. M. Kaplan (WHO) ; Dr M. L. Ahuja ; Dr H. N. Johnson ; Dr G. Stuart (WHO)

Altogether, data concerning over 1,600,000 persons treated were collected, from which useful information was obtained.[1] Final proof of the value of Pasteur treatment could not, however, be obtained, as no evidence was available with regard to the outcome of the disease in treated and untreated individuals.

Following proposals made at the First World Health Assembly in 1948,[2] rabiologists all over the world were consulted by WHO on a number of technical questions by means of a questionnaire, and an expert committee

[1] *Bull. Hlth Org. L.o.N.* 1946, **12**, 301
[2] *Chron. World Hlth Org.* 1948, **2**, 182

on rabies was convened in Geneva from 17 to 22 April 1950 [3] to examine the replies received, review the newest developments, and recommend a programme of action for WHO.

Active Immunization

Differences which are known to exist in the biological quality of anti-rabies vaccines have thrown doubt on the value of current vaccination procedures. It is now well established that, while certain batches of vaccine show a suitable potency, others, prepared under seemingly identical conditions, appear to be of little value.

Experiments which have been started in several institutes, and more particularly in the National Institutes of Health, Bethesda, Md., have led to various valuable discoveries with regard to the potency test, the inactivation of the rabies virus, the suppression of the paralysis-producing factor, and the standardization of the challenge virus.

Mouse potency-test

Improvement of vaccines in current use and production of a vaccine of standard potency became possible when Webster introduced a specially bred white Swiss mouse as testing animal. These mice are cheap, easy to breed, and highly susceptible to rabies. Later, Habel developed a standardized mouse potency-test, which made it possible to check the potency of the vaccine at each stage of its production. This test is based on a series of immunizing injections of constant concentration and quantity which are followed by intracerebral challenge of tenfold virus dilutions on the 14th day. Mice are observed for another two weeks and then the 50% mortality endpoints are determined. A thousandfold difference in protection between controls and vaccinated animals is the minimum protection required. Owing to the use of this technique, the importance of many factors in the production of a potent vaccine has been ascertained ; such as the need of a high infectious titre of the brains to be used for vaccine, which should reach at least 10^{-6} ; the kind and concentration of the inactivating chemical ;

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[3] The following were present at this meeting :

Members :

Dr M. L. Ahuja, Director, Central Research Institute, Kasauli, East Punjab, India
Dr I. A. Galloway, Director, Virus Research Institute, Pirbright, Surrey, United Kingdom (*Chairman*)
Dr K. Habel, Chief, Laboratory of Infectious Diseases, Microbiological Institute, National Institutes of Health (US Public Health Service), Bethesda, Md., USA
Dr H. N. Johnson, Laboratories of the International Health Division, Rockefeller Foundation, New York City, N.Y., USA
Dr H. Koprowski, Assistant Director, Section of Viral and Rickettsial Research, Lederle Laboratories, Pearl River, N.Y., USA (*Rapporteur*)
Dr P. Lépine, Chef du Service des Ultra-Virus, Institut Pasteur, Paris, France (*Vice-Chairman*)

Co-opted Member :

Dr M. Baltazard, Directeur de l'Institut Pasteur de l'Iran, Teheran, Iran

Secretaries :

Dr M. M. Kaplan, Veterinary Officer, Epidemiological Studies Section, WHO
Dr C. Klimt, Medical Officer, Epidemiological Studies Section, WHO

The report of the committee will be published as *World Hlth Org. techn. Rep. Ser.* **28**.

the time and temperature required for complete inactivation—which must be calculated so that maximal antigenicity is retained. The universal and continuous employment of these potency-test methods would ensure a supply of dependable vaccines, which cannot be guaranteed by the mere application of uniform production methods following a single test. Every producer should therefore be required to submit a sample of each batch of vaccine to a central laboratory for potency testing.

Ultraviolet (UV) irradiated vaccine

Rabies vaccines inactivated by ultraviolet irradiation have consistently given high protection values in the mouse potency-test. The titres are usually significantly higher than those obtained with other vaccines in current use. It has been found that as much as five times the minimal inactivating exposure has to be given before denaturation of the antigen takes place. There exists, therefore, a broad margin in which it is possible to work safely. A twofold minimal inactivating exposure is usually recommended. Owing to other difficulties in the preparation of vaccines, the employment of a specially trained technician is required. Liquid preparations need the addition of an enzyme inhibitor like merthiolate 1:10,000 after the virus has been inactivated, to ensure proper keeping qualities. Apart from an initial drop in titre, dried preparations keep their antigenicity well and can be recommended for use in countries where production and storage facilities are not adequate. The " UV vaccine " is now used for about half of the patients coming for treatment in the USA. This number is estimated at about 15,000.

Chick embryo vaccine (Flury strain)

A street virus recovered from a human case (Flury) has been subcultured in chicken and later adapted to chick embryos. In the course of numerous passages this strain has completely lost its pathogenicity for dogs, when given by routes other than the intracerebral one. The embryo itself, finely ground and freeze-dried, constitutes the vaccine. Large-scale trials in dogs, in the USA, have given very promising results. Not only is the vaccine innocuous for dogs, but it also shows some promise of conferring immunity for a longer period than other vaccines used so far. In experiments on a few human volunteers (cancer patients) it proved itself to be innocuous, even when given in high doses.

This vaccine cannot be tested with Habel's mouse potency-test. A special test, carried out on guinea-pigs, had to be developed. These are immunized by intramuscular injection and challenged after three weeks with street virus given intramuscularly.

Paralysis-producing factor

It had been found that so-called " paralytic accidents ", which had been ascribed entirely to infection with fixed virus contained in the vaccine,

continued to occur when completely killed vaccines were used. Experiments in animals led to the discovery that similar symptoms and pathological changes in the central nervous system could result from serial injections of normal brain tissue. A systematic test was developed to check these somewhat irregular occurrences, as it was found that the addition of adjuvants—lanolin, and paraffin oil, with killed BCG bacilli or *Mycobacterium butyricum*—to one dose of normal brain resulted fairly consistently in paralysis of the experimental animal. This test is now applied to rabies vaccines to determine the content of paralysis-producing factor.

Successful attempts have been made to eliminate this factor from rabies vaccines by subjecting them to benzene extraction from the dried state. The remainder of the benzene is removed by ether treatment and the dried sediment taken up in calcium acetate. The washed sediment constitutes the final product. At present work is being carried out with a view to the production of this vaccine on a commercial scale.

Problem of a standard vaccine

Differences in results obtained in the mouse potency-test were found to be due to the varying antigenic composition of substrains of Pasteur's original fixed virus. Some of them were capable of breaking through a high degree of immunity which had been demonstrated by a different strain, while others had lost their invasiveness to a large extent. In the USA, an intermediate strain has been chosen as a standard and is now being kept in the form of frozen mouse-brain pools and distributed once annually to producers, who use them as seed virus for a maximum of two mouse passages, so as to obtain enough challenge virus to last them for the year.

It is hoped that it will be possible, in the near future, to produce a standard reference vaccine, which can then be used to control each test and which will permit immediate recognition of any faulty results of the potency test.

Passive Immunization

Hyperimmune antirabies serum

The idea of passive immunization against rabies is more than fifty years old. Reports have been partly favourable, particularly as to the use of a sero-vaccine, and partly discouraging.

In recent years, modern methods of purification and of concentration of the antirabies serum fractions containing the neutralizing antibodies, have made possible the preparation of hyperimmune serum. This serum is obtained by repeated injection of fixed strains of rabies in rabbits or sheep. The animals are bled at regular intervals and large pools of serum or plasma prepared. These are fractionated (by such substances as ammonium sulphate, sodium sulphate, or methanol) and the gamma, or beta and gamma,

globulin fractions concentrated. The original neutralizing antibody titre has thus been increased a thousandfold, while at the same time the protein level was maintained at the normal value of 7%. With this serum, results have been obtained in animals which are superior to any results obtainable with vaccine alone. Protection was afforded only when serum treatment was given not later than 72 hours after infection. Optimal protection was obtained when serum treatment was followed by a course of vaccine. No interference between passive and active immunity has been observed. Serum treatment suggests itself whenever severe exposure has occurred, because it has been demonstrated that, in those cases where it does not of itself afford protection, it tends to prolong the incubation period and thus allows more time for active immunity to develop.

New Experiments Sponsored by WHO

The WHO Expert Committee on Rabies was of the opinion that the new methods of active and passive immunization had reached a suitable stage of development for trials in the field.

Mass vaccination of dogs

It is planned to hold a demonstration of mass vaccination of dogs with chick embryo vaccine (Flury strain) in Israel, where the incidence of rabies has shown a considerable increase as a consequence of neglect of regular control measures during the political disturbances.

The collaboration of a well-organized veterinary service has been promised, and it will be the responsibility of WHO to assist in the organization of this demonstration, which will not only give actual help where it is needed, but also yield further valuable information on, among other things, vaccination paralysis and the duration of immunity under field conditions. It will also, it is hoped, give an impetus to the idea of fighting rabies by prophylactic immunization of dogs.

Immunization of human beings

The experiments undertaken in the USA with the antirabies hyperimmune serum have proved most encouraging. However, the method cannot be put into general use until the experimental results are confirmed by a large-scale trial. This problem was one of the most important on the agenda of the committee. After considerable discussion, a detailed plan for such a project was worked out. It was agreed to entrust a field trial on this question to Dr Baltazard, Director of the Institut Pasteur in Teheran.

It was learned that, on an average, 50 severe wolf-bites occur annually in Iran, with a mortality which ranges between 30% and 50%. These bites occur in a series, and when a wolf enters a village it is almost certain to be rabid.

WHO will provide specialists to check the data on the spot and to assess the results statistically. These results will be published after consideration by the Expert Committee on Rabies at its second session.

The committee laid down that only cases which report for treatment within 72 hours should be included in the trial. The cases will be divided by strict alternation into two groups, of which one will receive the regular Pasteur treatment alone, while the other will be given serum in addition.

All other important factors, such as local treatment, which will consist of thorough cleansing with soap solution and no cauterization, have been laid down in detail, and proper care will be given to equal distribution of all factors which have a recognized bearing on the degree of risk of infection with rabies to which a bitten person is subjected. These are location and severity of bite, interference of clothing and, perhaps, the order in which bites were inflicted, as the saliva might be of diminishing infectivity.

Provision will be made for the thorough follow-up of cases : patients will be hospitalized for a minimum of two months after termination of treatment ; a male nurse will be stationed in the home village ; and finally, Dr Baltazard has undertaken personally to check the patients' health six months after the bite.

All precautions have also been taken for thorough laboratory studies to be carried out in connexion with this trial. The patients will be bled at regular intervals and the sera tested for immune bodies after shipment to various laboratories in the USA. A close check will also be maintained on the potency of serum and vaccines at the time of their actual use.

The serum required for this trial will be uniformly prepared from rabbits and is being supplied free of cost by a producing firm in the USA.

Ecological Studies

In some countries domestic animals are not the principal vectors of rabies. That is to say that even a strict control of dogs does not suppress rabies, because its principal hosts are wild animals. The most important of the animals incriminated are : the fox in North America and Eastern Europe, the jackal and the wolf in the Near East, South-East Asia, and North Africa, and the mongoose and the meercat in South Africa.

The discovery of a form of rabies in Central and South Africa transmitted by vampire bats can be regarded as the most important discovery of our generation on the ecology of the disease. This was the first conclusive demonstration of the existence of asymptomatic carriers. It was shown that vampire bats can harbour rabies virus temporarily in their saliva and remain completely healthy, though some developed the disease and died after prolonged excretion periods. Vaccination with Pasteur " fixed virus " has given good protection against rabies transmitted by vampire bats.

The Expert Committee on Rabies emphasized that there are many gaps in our knowledge of the epizootiology of rabies and that a great deal of research is required to give a more complete picture of the situation.

HEALTH STATISTICS

The Expert Committee on Health Statistics held its second session in Geneva from 18 to 21 April 1950.[1] Its principal task was to examine the conclusions of the three subcommittees which recently met in Paris and Geneva to study methods of improving cancer [2] and hospital statistics [3] and to decide on a new definition of stillbirth.[4] The Expert Committee on Health Statistics adopted the reports of the three subcommittees, adding to them, however, a certain number of observations.

Concerning cancer statistics, the committee stressed the fact that the only way to obtain accurate survival- and recovery-rates which will be beyond criticism, is to reduce the numbers of patients lost sight of, and of those whose condition was uncertain, to a minimum, so that it makes no appreciable difference what assumption is made about them. The committee was fully aware, however, that such an aim often cannot be completely realized, and it therefore emphasized the importance, for purposes of comparability, of formulating rules for dealing with the uncertain groups and of agreeing to use them. The committee felt that it was essential that a set of rules, even if imperfect, should be proposed by the World Health Organization and should, for the sake of uniformity, be used even by those who might deem it unsatisfactory in certain respects.

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[1] The following took part in this session :

Members :

Dr D. Curiel, Chief, Division of Epidemiology and Vital Statistics, Ministry of Health and Social Welfare Caracas, Venezuela

Dr P. F. Denoix, Chef des Services techniques et de la Section du Cancer, Institut national d'Hygiène, Paris, France

Dr H. L. Dunn, Chief, National Office of Vital Statistics (US Public Health Service), Washington, D.C., USA

Dr P. Stocks, Chief Medical Statistician, General Register Office of England and Wales, London, United Kingdom (*Chairman*)

Representative of the United Nations :

F. E. Linder, Chief, Population and Vital Statistics Section, Statistical Office, Lake Success, N.Y.

Observer :

Dr M. de Viado, Social Security Section, ILO

Secretariat :

Dr M. Pascua, Deputy Director, Division of Health Statistics, WHO (*Secretary*)

Dr Marie Cakrtova, International Nomenclature of Diseases and Causes of Death Section, WHO

Dr M. Kacprzak, Professor of Hygiene, Director, State School of Hygiene, Warsaw, Poland, was unable to attend.

The report of the committee will be published as *World Hlth Org. techn. Rep. Ser.* 1950, **25**.

[2] See page 286.

[3] *Chron. World Hlth Org.* 1950, **4**, 167

[4] *Chron. World Hlth Org.* 1950, **4**, 172

FIG. 4. EXPERT COMMITTEE ON HEALTH STATISTICS, SECOND SESSION

Left to right (seated round table) : Dr M. de Viado (ILO) ; Dr D. Curiel ; Dr P. F. Denoix ; Dr P. Stocks (Chairman) ; Dr M. Pascua (WHO) ; Dr Marie Cakrtova (WHO) ; Dr H. L. Dunn ; F. E. Linder (United Nations)

As regards hospital statistics, the committee stressed the need to discover to what extent and by what methods it would be possible to make hospital statistics more representative of the communities from which hospital patients are drawn. The committee considered that surveys of families or of those benefiting by medical services of all kinds would make possible a broader interpretation of hospital statistics and would thus increase their value from the public-health viewpoint.

The committee also examined the question of medical certificates and the use of the *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death.* It discussed the difficulties inherent in the use of the *Manual* in different countries and reaffirmed the position it had taken at its first session. It stressed the importance of encouraging national administrations to use the *Manual,* both by preparing descriptive pamphlets and instruction manuals and by stimulating, and if necessary conducting, training-courses for morbidity and mortality coders. Furthermore, benefiting by the experience obtained in certain countries, WHO should promote the education of physicians in the proper use of the international form of medical certificate of cause of death by preparing and circulating pamphlets and by developing programmes for the training of physicians and medical students.

Finally, as regards the definitions of the terms " live birth " and " foetal death ", the committee adopted the proposal of the subcommittee appointed to examine this problem. These definitions are intended—after their

adoption by the World Health Assembly—to be included in the national regulations relating to statistics on birth and stillbirth.

The next session of the committee, which will probably take place at the beginning of 1951, will be devoted to the study of the problems raised by morbidity statistics. The session will be concerned, in particular, with outlining, evaluating, and selecting projects requiring international action in this field.

PROBLEM OF CANCER STATISTICS

Since the publication in 1775 of the classical work of Pott on chimney-sweeps' cancer, studies devoted to the etiology of cancer have become more and more numerous. Pott not only described the clinical symptoms and the etiology of this variety of cancer, but he also indicated certain preventive measures. More than 140 years elapsed, however, before cancer was experimentally induced and the medical profession fully understood the importance of carrying out statistical and experimental studies on this subject. An example of failure to pursue this type of study is the lack of attempts to confirm the discovery, made in 1926 by Young and Russell, that there is a causal relation between alcohol consumption and the incidence of cancer of the upper digestive tract.

Value of Available Data

It is now no longer possible to doubt that certain studies on the etiology of cancer can lead to the discovery of new methods of prevention. The carcinogenic effect of certain substances, e.g., pitch, aniline dyes, tar, radioactive substances, and x rays, has been demonstrated both experimentally and statistically. More often, however, various factors have been held responsible without any scientific proof ; it has been stated that childbirth favours the appearance of cancer of the uterine cervix, that the incidence of gastric cancer both in Sweden and in Czechoslovakia is three times greater than in England, that cancer of the breast is almost unknown among Japanese women, and that cancer is much more prevalent among Italians in the northern than among those in the southern provinces. Until such statements have been subjected to rigorous experimental investigation and statistical analysis, they will have no practical value.

Research workers who undertake statistical studies of cancer, however, always have to overcome considerable difficulties. For example, most statistics on cancer are based on the analysis of death certificates, and there are sometimes reasons for doubting the accuracy of the diagnoses

given on these documents. In this connexion, Dr J. Clemmesen, Chief of the Danish Cancer Registry, found that the higher incidence of gastric cancer in Sweden as compared with that in England was partly explained by the fact that death certificates are drawn up by clergymen in certain Swedish provinces. Furthermore, it is impossible to compile statistics of cancer cases from which useful conclusions can be drawn if adequate vital statistics are lacking. A statistical comparison has no scientific significance unless the data are classified according to sex, age-groups, professional and ethnological groups of individuals, or other characteristics relevant to the problems being studied. In most cases such data are not available. Finally, experimental research is rarely undertaken to assist statistical analysis. Under these conditions, numerous interesting statistical observations are doomed to remain mere hypotheses.

Dr Clemmesen, in a paper submitted to WHO, concludes that :

" In consequence of these extensive demands, a close collaboration with the public statistical services involved is vital to the development of good statistics. However, in most countries civil servants will think and work quite differently from biological research workers with their eternal endeavour to raise problems and change methods. To this we may add a frequent tendency among the former to take a more national and less universal point of view than so far common in the medical world. But there is no way out of such difficulties except urging on the highest administrative level the necessity of providing the figures required for medical observations. Possibly an international authority, for instance under the United Nations, would afford the best means of establishing international collaboration on medical statistics . . . "

New International Effort

A WHO Subcommittee on the Registration of Cases of Cancer met in Paris, from 6 to 10 March 1950,[1] to review the statistical problems involved in the study of cancer.[2] In particular, the subcommittee studied the question of mortality and morbidity statistics, the difficulties involved in the statistical presentation of therapeutic results, and the advisability of continuing the publication of the *Annual reports on the results of radiotherapy in cancer of the uterine cervix.*

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[1] The following took part in this session :

Members :

Dr J. Clemmesen, Chief, Cancer Registry, Copenhagen, Denmark (*Chairman*)

Dr P. F. Denoix, Chef des Services techniques et de la Section du Cancer, Institut national d'Hygiène, Paris, France (Member of WHO Expert Committee on Health Statistics)

Dr H. F. Dorn, Biometrics Section, National Cancer Institute, National Institutes of Health (US Public Health Service), Washington, D.C., USA (*Rapporteur*)

Dr P. Stocks, Chief Medical Statistician, General Register Office of England and Wales, London, United Kingdom (Member of WHO Expert Committee on Health Statistics)

Consultant :

Dr J. Heyman, Editor, *Annual reports on the results of radiotherapy in cancer of the uterine cervix*, Stockholm, Sweden

Secretary :

Dr M. Pascua, Deputy Director, Division of Health Statistics, WHO

[2] The report of the subcommittee will be published in *World Hlth Org. techn. Rep. Ser.* 1950, **25**.

Mortality statistics

So far there is, unfortunately, no general agreement concerning the statistical definition of the term " cancer ". In fact, in the International Lists of Diseases and Causes of Death—the precursors of the *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death* [3]—Hodgkin's disease, leukaemia and aleukaemia, mycosis fungoides, and some other less common diseases were not classified as cancer. It is necessary, therefore, to find some way of removing all doubt concerning the statistical definition of cancer without, at the same time, making it impossible to compare future statistics with those already existing. For this reason the subcommittee recommended that the total number of deaths from cancer should be based on the classification given in the *Manual*. The diseases which have just been mentioned will therefore be incorporated in the cancer group. The subcommittee requested, however, that, to permit comparison with past statistics, the following subgroups should also be shown : cancer (excluding Hodgkin's disease, leukaemia, and aleukaemia) ; Hodgkin's disease ; leukaemia and aleukaemia.

Some members of the subcommittee felt that certain problems had arisen in the use of the section entitled " Neoplasms " in the *Manual*. For instance, the *Manual* does not give sufficient details about certain anatomical sites. Furthermore, the inclusion of secondary sites in the same subsection as primary sites also gives rise to certain difficulties, as does the lack of precision in the definitions of the various sites. Finally, when cancer is mentioned on death certificates along with other causes, the presentation of the statistical data is not always easy.

The subcommittee expressed the wish that users of the *Manual* should communicate to WHO information concerning difficulties encountered in connexion with the section on neoplasms, together with specific suggestions for overcoming them. The information thus collected will be studied by the subcommittee during a forthcoming session.

There is one particularly important task which devolves upon those helping to compile cancer statistics : they must endeavour to evaluate and improve the accuracy of cancer diagnoses given on death certificates. During recent years too little attention has been paid to the reliability of the data entered on death certificates. For this reason the subcommittee deemed it advisable to draw the attention of the national committees on health statistics and of other appropriate agencies to the need for a systematic comparison of the diagnoses given on death certificates with the results obtained from postmortem examinations and from other relevant sources of information.

Another problem examined by the subcommittee was that of the variations found in the geographical distribution of cancer. Studies have been

[3] *Bull. World Hlth Org. Suppl. 1*, 1948, 1

made in England and Wales of geographical variation in mortality from cancer of specific sites. These studies were examined by the subcommittee, which felt that such data might lead to interesting conclusions concerning the etiology of cancer. Consequently, it recommended that national committees and other appropriate agencies should undertake more studies of this nature. In cases where these studies bear upon the difference between urban and rural areas, it will be necessary to define exactly what is understood by the words " rural " and " urban " and to indicate clearly what corrections have been made for the deaths of non-residents.

Morbidity statistics and cancer registration

In hospitals in many countries, such as Canada, France, and Great Britain, cancer cases are registered and followed up after treatment. Furthermore, a special effort is at present being made in Denmark, Norway, and the USA to ascertain the total cancer morbidity in selected cities and districts.

It is clear that such research is very valuable since it not only increases the possibility that, in the future, patients developing cancer will, at the earliest opportunity, receive the best treatment available, but it will also increase our knowledge of the morbidity of cancer and its relation to social and environmental factors. The subcommittee decided that the use of methods for registering cancer cases which include information on the post-treatment histories of the patients should be encouraged. The final aim will be to include in such registration systems all persons suffering from cancer, thus eliminating errors from incomplete observations and permitting the determination of exact morbidity, survival, and apparent-recovery rates. Efforts made in many countries to determine the total incidence of cancer in certain selected areas will also be encouraged. The subcommittee did not feel, however, that it should recommend legislation for the compulsory notification of cancer.

In order to achieve greater precision in, and to improve the comparability of, data relating to cancer morbidity and the therapeutic results obtained, national committees and other appropriate agencies will be asked to prepare definitions, illustrated by diagrams if possible, of the principal anatomical sites affected by cancer and of the stages of the disease, that is, the extension of the neoplasm. These definitions will be submitted to the subcommittee for discussion and approval.

Statistical presentation of therapeutic results

At present there is no universally accepted method for calculating survival and apparent-recovery rates for cancer. Consequently, it is not possible to make an exact comparison of the results of different treatments. A single fixed interval—for example, five years—before results are recorded,

although appropriate for certain types of cancer, is not necessarily suitable for all kinds of neoplasms. The subcommittee recommended that survival and apparent-recovery rates should be calculated for successive intervals of one year, cumulative rates for periods greater than one year being obtained by multiplication of consecutive annual rates. In addition, the subcommittee adopted certain definitions and rules which, it is hoped, will help to improve cancer statistics, and recommended certain methods for calculating annual rates, for correcting the crude rates to allow for natural mortality, and for adjusting the crude apparent-recovery rate. A definition of survival-rates was also given by the subcommittee.

Annual Reports on the Results of Radiotherapy in Cancer of the Uterine Cervix

The subcommittee considered the *Annual Reports on the Results of Radiotherapy in Cancer of the Uterine Cervix*, edited by Dr J. Heyman, the fifth volume of which was published under the auspices of the British Empire Cancer Campaign (London), the Donner Foundation (Philadelphia), the Cancerföreningen (Stockholm), and the World Health Organization.

The subcommittee felt that the systematic collection and presentation of statistical data on therapeutic results, in accordance with standard rules and methods, would undoubtedly encourage improvement of methods of treating cancer patients. Consequently, it recommended that publication of the *Annual Reports* should be continued, but it suggested certain modifications which it considered necessary.

Future prospects

The subcommittee restricted itself during its first session to a discussion of specific problems of statistical methodology. Many other problems of considerable importance were passed over for the time being. The problem of cancer statistics remains extremely complex, and difficulties which several generations of statisticians have not been able to overcome cannot be solved during one brief session. Nevertheless, the meeting of the subcommittee represents an advance in this field. It is to be hoped that the adoption of generally accepted methods will lead to the discovery of new facts. The success of such an undertaking will not be assured, however, until every member of the medical profession ceases to regard medical statistics as a tedious and useless administrative activity and realizes that, in the long run, it is he himself who will benefit most from the advances in science and medicine which the compilation of adequate statistics will promote.

AFRICAN RICKETTSIOSES

Since the discovery of the transmission of classical typhus by Nicolle (1909), knowledge of the rickettsioses has been progressively extended and, during recent years, the existence of new pathological entities, such as Q fever, has been established. Although theoretical knowledge of the epidemiology, clinical course, and laboratory investigation of the rickettsioses is now fairly complete, the same cannot be said regarding equally important problems such as the geographical distribution, the prevention, and the treatment of these diseases. In particular, despite the advances made, especially during the last ten years, data on the geographical distribution of the rickettsioses throughout the African continent are still fragmentary and incomplete. This state of affairs may be readily explained by the lack of specialized laboratories and the shortage of doctors and qualified technicians, especially in tropical Africa where the organization of adequate services began only a few years ago. Furthermore, physicians have had to face the more urgent problems presented by diseases such as trypanosomiasis or malaria.

The work of Blanc, Cambournac, Ceccaldi, Garnham, Gear, Giroud, Jadin, Le Gac, Vaucel, etc., has already made it possible not only to assemble important data on the distribution of rickettsioses in various parts of Africa, but also to recognize the clinical and epidemiological aspects of these diseases.[1]

However, it was necessary to determine the present position and to co-ordinate all these data with a view to further research. This task was successfully accomplished by a Joint OIHP/WHO Study-Group on African Rickettsioses which met in Brazzaville from 8 to 14 February 1950.[2]

After reviewing the results of research carried out on the geographical distribution of the rickettsioses in Africa, the study-group considered, in succession, the characteristics shown by these diseases on the African

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[1] The papers submitted by the authors mentioned above will be reviewed in a forthcoming number of the *Epidemiological and Vital Statistics Report.*

[2] The following were present at this meeting :

Members :

Dr E. Aujaleu, Directeur de l'Hygiène sociale, Ministère de la Santé publique et de la Population, Paris, France
Dr G. Blanc, Directeur de l'Institut Pasteur du Maroc, Casablanca, Morocco
Dr P. C. C. Garnham, Reader in Medical Parasitology, London School of Hygiene and Tropical Medicine, London, United Kingdom
Dr J. Gear, Assistant Director, South African Institute for Medical Research, Johannesburg, Union of South Africa
Professeur J. A. H. Rodhain, Directeur honoraire de l'Institut de Médecine tropicale Prince Léopold, Antwerp, Belgium (*Chairman*)
Dr G. L. Timms, Director, Institute for Medical Research, Nairobi, Kenya
Médecin-Général Inspecteur M. A. Vaucel, Directeur du Service de Santé colonial, Ministère de la France d'Outre-Mer, Paris, France

Secretariat :

OIHP :

Dr M. Gaud, Directeur de l'Office International d'Hygiène Publique, Paris, France

WHO :

Dr Y. M. Biraud, Director, Division of Epidemiology, WHO (*Secretary*)

continent, present laboratory data, the clinical syndromes provisionally attributed to the rickettsioses, and, finally, the prophylaxis and treatment of these diseases.

Research to be undertaken, especially concerning epidemiology and laboratory investigations, was given particular attention by the study-group.

Characteristics of the Various Rickettsioses in Africa

While classical typhus may take epidemic form, murine and tick typhus are found only as sporadic cases or isolated groups of cases.[3] The symptoms of classical typhus and those of murine typhus are fairly similar. Inoculation sore (" tache noire "), maculopapular eruption covering the whole body, including the palms of the hands and soles of the feet, as well as the symptoms of mental excitement during the febrile stage, are characteristic of tick typhus. Q fever is characterized especially by pulmonary symptoms.

Laboratory Investigation

Classical typhus

The intraperitoneal inoculation of a guinea-pig with 4 or 5 ml. of blood from a patient in the first days of the febrile stage causes, after ten days, a febrile reaction which continues for five or six days, ending in recovery. The scrotal reaction which appears on the first passages through a male adult guinea-pig subsequently diminishes. It is less pronounced, however, after injection of human blood than it is after inoculation with crushed infected lice.

Serological diagnosis is made by means of the Weil-Felix reaction. In 90% of cases this is positive from the second week of the disease. Differential diagnosis of murine typhus is not possible with the Weil-Felix test. An agglutination titre of 1/200 with OX19 is necessary before the reaction can be considered positive. An increase in the titre during the course of the disease is, however, more significant than the titre itself. For both classical and murine typhus, agglutination titres are higher with OX19 than with OX2 and OXK.

Murine typhus

In the male adult guinea-pig, inoculation with blood from an infected person causes orchitis with inflammation of the tunica vaginalis (Neill-Mooser test) : the endothelial cells in the liquid exudate and the cells of the tunica vaginalis are filled with rickettsiae.

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[3] At the present stage of knowledge, human rickettsioses in Africa may be grouped as follows :
(1) classical, louse-borne typhus (epidemic), caused by *Rickettsia prowazeki* ;
(2) murine, flea-borne typhus, caused by *Rickettsia mooseri* ;
(3) tick typhus, including boutonneuse fever, Kenya typhus, and South African tick-bite fever, caused by *Rickettsia conori* ;
(4) Q fever or Derrick-Burnet's disease, caused by *Rickettsia burneti* or *Coxiella burneti*.

The Weil-Felix reaction in murine typhus is comparable to that given by classical typhus, but gives a lower agglutination titre.

Tick typhus

Inoculation of the male adult guinea-pig with blood from an infected person causes, after an incubation period of four to seven days, high fever accompanied by inflammation of the tunica vaginalis. In the guinea-pig, hypertrophy of the spleen is moderate.

The Weil-Felix reaction with OX2 and OX19 is variable and late. When the agglutination titre is higher with OX2 than OX19, the probability of tick typhus may be concluded. The reaction is rarely positive before the tenth day. With the OXK strain, the reaction is more frequent and gives a higher titre than with the preceding antigens.

Q fever

Intraperitoneal inoculation of the guinea-pig with blood from an infected person gives rise to a very high fever which appears two or three days after inoculation and lasts five to seven days. Q fever often results in the death of the guinea-pig, although at a late stage. Inflammation of the tunica vaginalis is not seen, but there is very marked enlargement of the spleen with perisplenitis, and numerous rickettsiae are present in the cells of the peritoneal exudate.

The Weil-Felix reaction is negative with all strains. Agglutination of the rickettsiae is positive from a titre of 1/5 and may reach 1/40. These serological indications may persist for several years.

Clinical Syndromes Provisionally Ascribed to the Rickettsioses

The experts agreed that the term " Congolese red fever ", which actually covers diseases which may be related to one or other of the different varieties of typhus, should be definitely abandoned.[4]

Le Gac has reported the occurrence in Ubangi-Shari of a severe epidemic disease whose symptoms are related to those of classical typhus ; this disease has been called " savanna typhus " (" typhus des savanes "). However, further research will be necessary to determine the identity of this disease.

Research to be Undertaken

Important research remains to be undertaken on the precise geographical distribution of the different rickettsioses observed in Africa, both in man and in certain animals. For example, it is not understood why murine

[4] Congolese red fever has been discussed by Gaud, M. (1949) *Bull. World Hlth Org.* **2**, 257.

typhus is distributed over almost the whole of Africa whereas classical typhus has rarely been reported there.

Other subjects which should be studied are : the possibility of the transmission of murine typhus by ticks and other members of the order Acarina; the antigenic characteristics of the various strains of the murine-typhus virus ; the possibility of classical typhus changing into murine typhus and vice versa ; the efficacy of various products for destroying or repelling ticks ; and the existence of rickettsioses transmitted by Trombidiidae.

The study-group feels that it is necessary for each region of Africa to have a specialized laboratory where diagnostic tests can be carried out, such tests being confirmed by central laboratories. The latter would also be responsible for preparing standard suspensions of rickettsiae and distributing them to the regional laboratories. This research could later be co-ordinated with laboratories in other continents.

The study-group recommended that WHO should supply technical and financial assistance to the central laboratories.

Prophylaxis of the Rickettsioses

Preventive measures depend on the way in which the rickettsioses are transmitted. Thus, the method of choice for the prevention of classical typhus is the application of DDT. The sterilization of louse excreta may be ensured by steeping personal effects in a weak antiseptic solution and then exposing them to sunlight. Vaccination should be reserved for subjects who are specially exposed to infection.

The control of the ectoparasites of the rodent reservoirs of murine typhus and the use of new rodenticides constitute the most important preventive measure against this form of typhus.

The prevention of tick-borne rickettsioses consists in freeing infested animals from their parasites whenever this measure can be applied, e.g., in the case of domestic animals. In this case, the animals may be dipped in a solution of sodium arsenite or sprayed with DDT or gammexane in a dilution of 2 in 1,000. Controlled bush fires may also be useful against the ticks which swarm in such places.

For subjects exposed to tick bites, the prophylactic use of 0.25 g. of aureomycin, or 0.5 g. of chloromycetin, daily is recommended. The use of these drugs should be continued for 21 days following exposure to the bites. Larger doses of these antibiotics may check tick typhus provided that they are administered during the incubation period.

For the prevention of Q fever, the measures recommended include destruction of ticks, sterilization of milk in infected areas, and the isolation of patients to prevent interhuman transmission through the respiratory tract.

Treatment of the Rickettsioses

Besides the classical symptomatic drugs, aureomycin and chloromycetin have proved to be very effective in the treatment of rickettsioses, provided that they are administered at the onset of the disease. It is desirable that these antibiotics be rapidly placed at the disposal of doctors in areas where the rickettsioses are prevalent.[5]

[5] The report of the Joint OIHP/WHO Study-Group on African Rickettsioses will be published as *World Hlth Org. techn. Rep. Ser.* **23**.

Reports from WHO Fellows

Many of the letters and reports received from WHO Fellows have been of such interest that they deserve to be read by a wider public. They demonstrate more vividly than a series of facts and figures both the nature of the fellowship programme and the response of the Fellows themselves. Selections from these reports have therefore been published from time to time, but it must be emphasized that the opinions expressed are those of the Fellows.

Biochemistry and Clinical Experience

Dr S. A. Mahkota, Assistant Physician at the Clinic for Internal Medicine of the University of Ljubljana (Yugoslavia), has spent several months in Swiss university medical clinics studying recent advances in medical chemistry and their application to therapeutics. He ended his study-trip with a visit to the United Kingdom.

During his study-trip Dr Mahkota familiarized himself with recent biochemical discoveries, relating to amino acids, proteins, vitamin B_{12}, adrenocorticotropic hormone (ACTH), cortisone, etc., which have opened up new perspectives in medicine. He studied their therapeutic application and paid particular attention to methods for the analysis and determination of these various substances. The experience which he gained as regards laboratory research, on the one hand, and therapeutics, on the other, led him to reconsider his views on the relationship of biochemistry to clinical medicine. He expresses his attitude as follows : " . . . in spite of the momentous discoveries, we could say a complete revolution, brought about by modern biochemistry, this science alone will not be able to yield the desired results without a close co-operation with serology and clinical work. My earlier conviction that clinical work plays but a subordinate, less important, role was shaken when I found that only careful clinical observations can supply biochemistry and other sciences with such ideas that will serve as signposts for modern research . . . These [clinical] observations still produce sound progressive ideas, the real nature of which is defined by biochemistry and serology."

At the Medical Clinic of the Zürich Cantonal Hospital, Dr Mahkota studied methods for the analysis of serum proteins by electrophoresis, the microscopical analysis of blood

specimens, and the drawing-up of myelograms and splenograms. In the biochemical laboratory of the Medical Polyclinic of Basle University, he was particularly interested in the quantitative estimation of gamma globulins in blood serum. While working in the Medical Polyclinic at Berne, he paid special attention to the effect of sympathicolytics on peripheral circulatory disturbances and hypertension ; these phenomena are considered there from both the clinical and the biochemical aspects.. He also carried out microscopical research on various types of anaemia ; this work included the cytological control of the therapeutic effects of vitamin B_{12} and research on antidotes of folic acid.

In London, Dr Mahkota was able to attend extension courses given at the Postgraduate Medical School of London, Hammersmith Hospital. Thanks to the kindness of the Ministry of Health, he gained some idea of the campaign against rheumatism, visiting the Special Unit for Rheumatism in the Canadian Red Cross Memorial Hospital at Taplow, as well as the Lister Institute.

Now that he has returned to his own country, Dr Mahkota intends to continue his studies, particularly on the blood and humoral dyscrasias and their relation to protein metabolism. He also wishes to share with other practitioners the experience he has acquired and is therefore planning a series of articles, to appear in the medical press of Slovenia, giving information on modern therapy in internal medicine and helping to popularize methods which, up to now, have not entered into routine use.

Notes and News

Mental Health Statistics in England and Wales

Improvements in the collection and compilation of statistics on mental health in England and Wales have been described in a note recently submitted to the WHO Subcommittee on Hospital Statistics (of the Expert Committee on Health Statistics) by Dr P. Stocks, Chief Medical Statistician, General Register Office of England and Wales, London. An extract from this note follows :

" The reorganization of the Mental Health Services provided an opportunity to revise the methods of collecting and compiling statistics of mental illness and defect. Some of the forms and classifications which had been in use for many years were out of date and the information obtained from them inadequate. In consultation with the General Register Office, the Board of Control adopted two forms of hospital index card, one for cases of mental disorder, the other for cases of mental deficiency . . .

" Index cards have been completed in all National Health Service mental hospitals and mental deficiency institutions in respect of all patients admitted or discharged on or after 1st January 1949. They are sent at regular intervals to the General Register Office, where they are coded and machine card punched . . . More limited data were obtained about ' long-stay ' patients, i.e., those in the hospitals or institutions before the 1st January 1949 who were still there on the 31st December 1949, so that the records will provide a complete census of patients who were in, or passed through, mental hospitals and mental deficiency institutions during the first year in which the scheme operated . . .

" The aim is to have information covering all aspects of mental health so that specific questions may be answered and general trends discussed. The information is in such a form that it can be compared and related to general medical and population statistics.

Diagnoses are coded by the *International Statistical Classification of Diseases, Injuries and Causes of Death* (1948) [1] with a view to correlating findings in this country with those in others."

National Morbidity Inquiry in England and Wales

The following information concerning innovations in methods of collecting and compiling hospital statistics in England and Wales is from a note submitted to the WHO Subcommittee on Hospital Statistics (of the Expert Committee on Health Statistics) by Dr P. Stocks, Chief Medical Statistician, General Register Office of England and Wales, London.

" From 1st January 1949 arrangements were made for the large teaching hospitals and a representative number of other hospitals of different kinds to make records of in-patients on a standard form . . . This form requests information about sex, age, marital status, occupation, and birth weight of babies born in hospital, as well as statements of final diagnosis designed to show separately principal disease, complications and accessory acute conditions and of certified cause in cases where death has supervened. The reverse side of the form has been designed to allow for the easy recording of full details of all cases of accident, injury or poisoning.

" At the end of every month these forms, completed in respect of patients who were discharged or who died during the month, are sent to the General Register Office where they are coded, the data being recorded subsequently on punched cards for tabulation by machine. Approximately 350,000 forms were completed during the year 1949."

WHO Antimalaria Activities in India

In 1949, four malaria demonstration teams began operating in India, under the technical supervision of WHO and with supplies furnished by UNICEF. These teams have been engaged mainly in demonstrating modern malaria-control methods and in training local personnel.

An important part of the programme of the demonstration teams is the health education of the public. An example of this aspect of their work comes from the team operating in the Jeypore Hills area in India. With the help of the District Public Relations Officer, public meetings were arranged in nine different centres and were attended by more than 3,000 people. In some cases the meetings took place at weekly markets, which are attended by the inhabitants of a wide circle of villages. At one meeting a petition was presented asking the Government of India to continue malaria-control work indefinitely, and a general appreciation of the results already achieved was voiced.

Talks were given on the cause and prevention of malaria, the programme of work of the demonstration team, and the ways in which the public could co-operate. The chief purpose was to persuade the people to complete repair work on their houses a month or two earlier than usual, and to impress upon them the necessity of leaving the walls and roofs untouched once the spraying with insecticides had begun.

Lessons in public health, including talks and demonstrations on insect-borne diseases and their prevention, were given in 13 schools, and 727 schoolchildren were examined. The lessons were attended by a number of adults and children not in school.

During 1949 the team's operations covered an area of 880 square kilometres and afforded protection to a total population of 60,900. The quantity of technical grade DDT sprayed per square metre per year was 2.1 g., and the quantity of DDT used per capita per year was 32.2 g. No vectors were found nine months after the spraying, in the houses (bedrooms) of villages sprayed in July and August 1949.

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[1] *Bull. World Hlth Org. Suppl. 1*, 1948-9 — ED.

House-to-house visits were carried out in four villages. Blood-smears from babies under one year and from suspected malaria victims were examined, and paludrine treatment was given to confirmed cases. Of these cases, the largest number came from unsprayed villages. Health inspectors report that only a few cases of malaria were found in the sprayed villages, and this is confirmed by information from the village people themselves.

Special Issue of the British Medical Journal on WHO

An international health number of the *British Medical Journal* was published on 6 May 1950. The issue contains the following articles dealing particularly with the work of the World Health Organization :

" The World Health Organization ", by Dr Brock Chisholm, Director-General of WHO. A discussion of the Constitution, aims and scope, and the organizational structure of WHO.

" Advisory Services of the World Health Organization ", by Dr Martha M. Eliot, Assistant Director-General of WHO, Department of Advisory Services. A description of the special services provided by WHO to governments, and of WHO field activities in malaria, venereal infections, tuberculosis, maternal and child health, etc.

" Origins of International Health Work ", by Dr N. Howard-Jones, Director, Division of Editorial and Reference Services, WHO.

" Therapeutic Substances in their International Aspects ", by Sir Sahib Singh Sokhey, Assistant Director-General of WHO, Department of Central Technical Services. A description of WHO's work in biological standardization, unification of pharmacopoeias, and addiction-producing drugs.

" Medical Statistics and World Health ", by Dr Percy Stocks, Chief Medical Statistician, General Register Office, London ; Member of the WHO Expert Committee on Health Statistics.

" The International Control of Epidemics ", by Dr Yves Biraud, Director, Division of Epidemiology, WHO. A discussion on international epidemiological intelligence services, broadcasting of information, revision of sanitary legislation, and the drafting of new WHO sanitary regulations.

" The World Health Organization Library ", by Miss Ethel Wigmore, Librarian, WHO. A description of the organization of the library and the assistance it gives to governments in the provision of medical literature.

The number also includes an illustrated article on some aspects of WHO activities in the field, and three editorial articles on world health, international statistics, and standardization of drugs.

IMPORTANT ANNOUNCEMENT

Beginning with Volume 3, No. 1, the *Bulletin of the World Health Organization* will no longer be published in separate editions in English and in French. Instead, a single edition will be published which will contain articles either in English or in French, according to the language in which they were submitted, with summaries in both languages.